

# UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. 1405.1026/JDH

First Named Inventor or Application Identifier:

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Express Mail Label No.

**APPLICATION ELEMENTS**

See MPEP chapter 600 concerning utility patent application contents.

**ADDRESS TO: Assistant Commissioner for Patents  
Box Patent Application  
Washington, DC 20231**

1. ☒ Fee Transmittal Form
2. ☒ Specification, Claims & Abstract ..... [ Total Pages: 43 ]
3. ☒ Drawing(s) (35 USC 113) ..... [ Total Sheets: 7 ]
4. ☒ Oath or Declaration ..... [ Total Pages: 4 ]
  - a. ☒ Newly executed (original or copy)
  - b. ☐ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 17 completed)
    - i. ☐ DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation by Reference (usable if Box 4b is checked)  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ Microfiche Computer Program (*Appendix*)
7. ☐ Nucleotide and/or Amino Acid Sequence Submission (*if applicable, all necessary*)
  - a. ☐ Computer Readable Copy
  - b. ☐ Paper Copy (identical to computer copy)
  - c. ☐ Statement verifying identity of above copies

**ACCOMPANYING APPLICATION PARTS**

8. ☒ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(b) Statement (*when there is an assignee*)     ☐ Power of Attorney
10. ☐ English Translation Document (*if applicable*)
11. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503) (*Should be specifically itemized*)
14. ☐ Small Entity Statement(s)     ☐ Statement filed in prior application, status still proper and desired.
15. ☒ Certified Copy of Priority Document(s) (*if foreign priority is claimed*)
16. ☐ Other:

**17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:**☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No:        /       **18. CORRESPONDENCE ADDRESS**

21171

PATENT TRADEMARK OFFICE

# NEW APPLICATION FEE TRANSMITTAL

Attorney Docket No. 1405.1026/JDH  
Application Number UNASSIGNED  
Filing Date September 20, 2000

AMOUNT ENCLOSED \$ 808.00 First Named Inventor Masahiko MURAKAMI, et al.

## FEE CALCULATION (fees effective 10/01/97)

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
TOTAL CLAIMS	13	- 20 =	0	X \$ 18.00 =	\$ 0.00
INDEPENDENT CLAIMS	4	- 3 =	1	X \$ 78.00 =	78.00
MULTIPLE DEPENDENT CLAIMS (any number; if applicable)				+ \$260.00 =	0.00
				<b>BASIC FILING FEE</b>	690.00
				Total of above Calculations =	\$ 768.00
Surcharge for late filing fee, Statement or Power of Attorney (\$130.00)				+	0.00
Reduction by 50% for filing by small entity (37 CFR 1.9, 1.27 & 1.28).				-	0.00
				<b>TOTAL FILING FEE =</b>	\$ 768.00
Surcharge for filing non-English language application (\$130.00; 37 CFR 1.52(d))				+	0.00
Recordation of Assignment (\$40.00; 37 CFR 1.21(h)(1))				+	40.00
				<b>TOTAL FEES DUE =</b>	\$ 808.00

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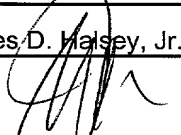
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## SUBMITTED BY: STAAS & HALSEY

Typed Name	James D. Halsey, Jr.	Reg. No.	22,729
Signature		Date	September 20, 2000

TITLE OF INVENTION:

COMMUNICATION SUPPORT METHOD AND SYSTEM

BACKGROUND OF THE INVENTION

5 Technical Field

The present invention pertains to technology for promoting communication between users connected to a network.

00T260" 65999900  
10 A chat system in the present invention is a system structured to include a plurality of chat devices. Each chat device is connected to a network and can share a virtual chat space configured on the network. Chat devices can send and receive text messages among themselves in real time.

15 IRC (Internet Relay Chat) is one type of chat system structured on IRC protocol (RFC1459). IRC comprises IRC servers and IRC clients connected on the Internet. IRC clients share a virtual space known as a channel, and can send and receive text messages in real time. An IRC server broadcasts messages from an IRC client to other IRC clients  
20 in the same channel. In IRC, each IRC client is uniquely specified using an identifier known as a nickname. Each channel is given a channel name and topic. A channel name is channel identifier that uniquely identifies channel. The topic gives a summary of the chat contents in the channel.

[illegible]

When a channel is created, a name is chosen for the  
15 channel that suits the issues expected to be discussed.  
However, if those issues change after the channel is created,  
the set channel name seldom changes to suit the issues. In  
addition, the contents or issues discussed on a channel can  
be set as the topic, but this too is usually not changed  
20 when the issues change. The chat contents in a channel  
often undergo dynamic change. However, since the channel  
name or topic does not usually change, the name or topic  
does not always match the chat contents. Consequently, the  
chatting often differs radically from user expectations.  
25 Therefore, a user must participate in channels one by one

and view the chat contents. Consequently, searching for a suitable channel can be quite time consuming. Furthermore, sensitive issues such as minors participating in and viewing messages from explicitly sexual channels can result.

5        One method that has been considered is to analyze the chat contents of a channel at the server side, decide the channel characteristics, and notify the user. However, with current natural language processing technology it is difficult to analyze conversation and determine its  
10 characteristics. Even if it were possible, the cost of computer resources would be prohibitive. Furthermore, providing systems to users around the world who participate in IRC with this type of technology is not practical.

007260" 6589950  
15        Currently, conventional chat systems including chat systems on the Internet such as IRC, etc., URLs (Uniform Resource Locator, RFC1738) frequently appear. If chatting increases after a URL is said, it would seem that the URL that was introduced is appropriate for the channel characteristics. Conversely, if the user that said the URL  
20 is kicked off the channel, it would appear that the URL was not suited for the channel.

As the Internet expands, access control services for web pages offered by WWW servers and all sorts of web page information retrieval services are being developed and  
25 provided. While performing these services, URLs are

classified in specific categories. For example, various types of URL databases have been provided, ranging from directory service databases such as Yahoo, etc., to PICS (Platform for Internet Content Selection). As a result,  
5 URLs are being used as an index to indicate category.

The object of the present invention is to provide technology for encouraging communication between users, suitable for systems used by many users, easily able to detect changes in the content of chatting performed in a  
10 chat system, able to appropriately indicate chat contents to users, and ease selection of a virtual space in a chat system.

#### SUMMARY OF THE INVENTION

15 As described above, attribute-defining information is provided for a keyword such as a URL. When a keyword is included in a message said in a certain virtual space, one can say there is a high possibility that the chat contents in that virtual space are related to that keyword's  
20 attributes. The present inventor focused on the point that if this were so, it should be possible to infer the contents of chat taking place in a virtual space, without utilizing a complicated natural language analysis system and the like.

That is, in order to resolve the aforementioned problem,  
25 according to an aspect of the present invention a

communication support method is provided. The method is used in a chat system. The chat system is structured to include chat devices. The chat devices are connected to a network and share any virtual chat space configured on the network.

5 The chat devices can send and receive messages among themselves. The support method of the present invention requires:

A. Associating and preparing specific keywords with specific categories,

10 B. Specifying the category of the keyword wherein at least one of the keywords are included in messages sent or received in a virtual space,

C. Associating and storing keywords and the categories of the keyword with virtual space identifiers of said virtual spaces in which messages are sent or received,

15 D. Calculating the characteristics of the virtual spaces based on the keyword categories associated with the virtual spaces, and

E. Reporting the virtual space characteristics to users.

20 Using an example in which a URL is used as the keyword, a category table in which a URL is associated with a specific category is prepared in advance. An existing database (hereinafter simply "DB") can be used as the category table. When a URL is included in a message said in





the control means reads a keyword category from the category table. The control means writes the virtual space identifiers of virtual spaces into which at least one of said keyword were sent, the keywords, and the keyword categories in the virtual space table. The decision means calculates the characteristics of the virtual spaces based on the keyword categories associated with the virtual spaces. The output means outputs the characteristics of the virtual spaces.

10 The effect is similar to that of the first mentioned aspect of the present invention.

According to another aspect of the present invention, the communication support system of the second mentioned aspect of the present invention has a virtual space table that associates and stores virtual space identifiers, keywords, keyword categories and also message times at which the aforementioned keywords were sent into the virtual spaces. In this system, the control means additionally acquires the message times of messages including keywords from the chat system. Furthermore, the control means writes the keyword message times to the virtual space table. The decision means calculates the virtual space characteristics based on the categories of the keyword in accordance with the chat volume in the virtual space from a message time until a specified time has elapsed.

09666859 " 092100

The time a user says a keyword is recorded in the virtual space table. The specific time period may be set in advance on the system side, or may be a setting received from the user. A keyword category that activates chatting  
5 in a virtual space within a specified time period after message is more strongly reflected in the characteristics of the virtual space.

According to another aspect of the present invention, the communication support system of the second mentioned  
10 aspect of the present invention is additionally provided with a message volume storage means for storing the volume of messages sent from chat devices for each virtual space. The decision means calculates the virtual space characteristics based on the categories of the keyword sent  
15 by the chat devices in accordance with the message volume of chat devices in the virtual space.

The category of a keyword said by a user whose messages are active is more strongly reflected in the characteristics of the virtual space.

20 According to another aspect of the present invention, the communication support system of the second mentioned aspect of the present invention is additionally provided with a channel entry time storage means. The channel entry time storage means stores the times chat devices entered  
25 virtual spaces for each virtual space. In this system, the



According to another aspect of the present invention,  
the communication support system of the second mentioned  
aspect of the present invention has decision means that  
compares the characteristics of virtual space and keyword  
5 categories. The decision means decides whether or not to  
report a sent message to other chat devices in the case a  
message including a keyword is sent from a chat device into  
a virtual space. The chat system sends the message in  
accordance with the aforementioned decision.

10 That is, if a virtual space and a keyword have rather  
different characteristics, a message that includes that  
keyword is not broadcasted to other chat devices in the  
virtual space.

According to another aspect of the present invention  
15 the communication support system of the seventh mentioned  
aspect of the present invention has a decision means that  
instructs the chat system to expel a chat device that sent a  
message from a virtual space when it decides that the sent  
message will not be reported to other chat devices. The  
20 chat system expels the chat device that sent the message  
from the virtual space in accordance with the aforementioned  
instruction.

That is, a user who says keywords that are not suitable  
for the chat contents of a virtual space is expelled from  
25 the virtual space.

According to another aspect of the present invention the communication support system of the seventh mentioned aspect of the present invention has a decision means that additionally has a blacklist. The blacklist records chat  
5 device identifiers of chat devices that sent messages when the decision means determines that the sent message should not be reported to other chat devices. In addition, the decision means decides that a message will not be reported to other chat devices when the source of the message  
10 acquired from the chat system is included on the blacklist.

Therefore a user who makes messages that are not suitable for the chat contents of a virtual space is entered in a blacklist, and subsequent messages are not distributed to other users.

15 According to another aspect of the present invention the communication support system of the seventh mentioned aspect of the present invention has a decision means that decides whether to expel a chat device that has sent an unsuitable message from a virtual space or to report a sent  
20 message to other chat devices. These decisions are determined by analysis of the results comparing a virtual space characteristics and keyword categories.

If a keyword and a virtual space have rather different characteristics, the keyword sender can be expelled from the  
25 virtual space. If the difference between their

characteristics is within an allowed range, the said message is simply not reported to other users.

According to another aspect of the present invention, the communication support system of the second mentioned  
5 aspect of the present invention has a control means that additionally acquires the message time of a message that includes at least one keyword from the chat system additionally writes the message time in the virtual space table, and deletes keywords and keyword categories from the  
10 virtual space table if a specified time that commenced at message time has elapsed

When a rather long time elapses after a keyword is said, there is a possibility that it is not related to current chat contents. Therefore, the keyword category is deleted  
15 from the virtual space table after passage of a specific time since the keyword has said. By doing so, the characteristics of a virtual space can be calculated using fresh keywords that always reflect the current chat contents.

According to another aspect of the present invention, a  
20 computer-readable recording medium on which a communication support program is recorded is used in an information terminal capable of broadcasting a message to chat devices. The chat devices share virtual spaces configured on a network and can send and receive messages among themselves.

The control program executes the following stages A through E.

A. Preparing a category table for associating and storing specific keywords with specific categories,

5 B. Preparing a virtual space table for associating and storing virtual space identifiers, keywords sent into in virtual spaces, and keyword categories,

C. Reading keyword categories from the category table and writing the virtual space identifiers of the virtual  
10 spaces into which the keywords were sent, the keywords, and the keyword categories to the virtual space table wherein a message sent into a virtual space is acquired from the chat system and the message includes at least one of said keywords,

15 D. Calculating the characteristics of the virtual spaces based on the keyword categories associated with the virtual spaces, and

E. Outputting the characteristics of the virtual spaces.

20 An operating effect similar to the first mentioned aspect of the present invention is realized. Examples of recording media include computer-readable floppy disks, hard disks, semiconductor memories, CD-ROM, DVD, magneto-optical disks (MO), etc.

According to another aspect of the present invention, a transmission medium transmits a communication support program that reports virtual space characteristics to chat devices. The chat devices share virtual spaces configured  
5 on a network and can send and receive messages among themselves. The control program executes the following stages A through E:

- A. Preparing a category table for associating and storing specific keywords with a specific categories,
- 10 B. Preparing a virtual space table for associating and storing a virtual space identifiers, keywords sent into a virtual spaces, and keyword categories,
- C. Reading keyword categories from the category table and writing the virtual space identifiers of the  
15 virtual spaces into which keywords were sent, the keywords, and the keyword categories to the virtual space table wherein a message sent into a virtual space is acquired from said chat system and the message includes at least one keyword,
- 20 D. Calculating the characteristics of the virtual spaces based on the keyword categories associated with the virtual spaces, and
- E. Outputting the characteristics of the virtual spaces.



An operating effect similar to that of the first mentioned aspect of the present invention is realized. Examples of transmission media include communication media in computer network systems for transmitting and supplying  
5 program information as a transmission wave. Computer networks include LAN, the Internet, wireless communication networks, etc. Communication media include optical fiber, wireless circuits, etc.

These and other objects, features, aspects, and  
10 advantages of the present invention will become apparent to those skilled in the art from the following detailed description, which taken in conjunction with the annexed drawings, discloses preferred embodiments of the present invention.

15  
BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1: An overall structural view of a communication support system related to the first embodiment.

FIG. 2: A schematic explanatory view of the category DB.

20 FIG. 3: A schematic explanatory view of the user table.

FIG. 4: A schematic explanatory view of the URL table.

FIG. 5: A diagrammatical view showing channel characteristics displaying example (1).

FIG. 6: A diagrammatical view showing channel  
25 characteristics displaying example (2).

FIG. 7: A flow chart showing the flow of characteristics update processing performed by the decision part.

FIG. 8: A flow chart showing one example of the processing flow using channel characteristics.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

##### 10 First Embodiment [Configuration]

FIG. 1 shows an overall structural view of a communication support system in accordance with the present invention. The communication support system has a plurality of user terminals 1a, 1b... and a server terminal 2 connected via a network 3 such as the Internet or an intranet, mobile communication network, etc. Furthermore, this embodiment is explained with an example in which the inventive communication support system is applied to IRC.

##### 20 (1) Server Terminal

A server terminal 2 is provided with an IRC server 21, a category DB 22, a storage part 23, and a decision part 24. However, the category DB 22 does not have to be in the server terminal 2 as long as it can be read by the decision part 24. FIG. 2 is a schematic drawing illustrating the

properties of the category DB 22. The category DB 22  
accumulates URL characteristics, specifically points for  
each URL category, for each URL. URL points are shown for  
each of five categories—"computers," "education," "economy,"  
5 "politics," and "sports"—in the category DB 22 shown in FIG.  
2. For example, "URL1" has the most points for "computers,"  
followed by the points for "economy."

Furthermore, how URLs are classified depends on the  
category DB; it is not particularly restricted. Also,  
10 keywords do not have to be URLs. Specific vocabulary terms  
such as "Internet" or "chat" may also be used in the  
category DB. A directory service database or existing  
database such as PICS can be used as the category DB.

The storage part 23 holds the user table and URL table  
15 created by the decision part 24. FIG. 3 is a schematic  
drawing explaining the user table. The user table  
associates and accumulates channel name, user name, channel  
entry time, and message volume. User name lists the nickname  
of a user who has entered a channel specified by a channel  
20 name. In FIG. 3, user "MUL" and user "pine" have entered  
channel "#CHOCOA". Channel entry time lists the date and  
time each user entered a channel. In FIG. 3, user "MUL" is  
shown as having entered a channel at 10:54:50 on October 26,  
1999. Message volume shows the number of messages a user

sent since entering the channel. For example, user "MUL" has made 14 messages since entering channel "#CHOCOA".

FIG. 4 is a schematic drawing explaining the URL table held in storage part 23. The URL table accumulates data relating to channel name, URL, message sender, message time, number of messages, and URL characteristics.

"URL" lists URLs said in a channel specified by a channel name. FIG. 4 shows that "URL1" and "URL2" have been said on channel #CHOCOA.

"Message sender" lists the nicknames of users stating the URL. FIG. 3 shows that user "MUL" said URL1, and user "pine" said URL2.

"Message time" lists the time and date a URL was said. FIG. 4 shows that URL1's message time was 17:21:24 on October 26, 1999.

"Number of messages" lists the number of messages in a channel within a specific time after a URL was said. In this embodiment the specified time is set at five minutes. FIG. 4 shows that in the five minutes since URL1 was said, there were at least 6 messages.

"Characteristics" lists the URL characteristics written from the aforementioned category DB 22. In this example points are listed in each category of the originating URLs.

The decision part 24 calculates the characteristics of a channel in accordance with specific parameters based on

the characteristics of URLs said in the channel.

Specifically, the decision part calculates the points in each category of a channel from the total of the points in each category of URLs said in the channel.

5       The decision part 24 also reports the calculated channel characteristics to the IRC server. The IRC server stores points in each category for a channel together with other information related to other channels. When channel characteristics are updated or when there is a request from  
10   an IRC client, the channel characteristics stored in the IRC server are reported to the IRC client.

      In addition, in this embodiment the decision part 24 assigns weightings to URLs based on the following parameters. This is done because the more suitable a URL is for the chat  
15   contents of a channel, the more its characteristics are reflected in the channel characteristics. The parameters are:

      Parameter 1: Message volume

      Parameter 2: Time in a channel

20       Parameter 3: Number of messages

      Parameter 4: Channel operator attributes

      Weighting URL characteristics based on parameter 1, message volume, is performed as follows. Points for each URL category are added or subtracted according to the  
25   message volume of the user who said the URL, because the URL

characteristics weighting of a user who is actively making messages increases. Those URL characteristics are reflected in the channel characteristics. In this embodiment addition and subtraction are performed as follows.

5       When (message volume) < 5,  $\Delta$  point = 0 (no change)

          When (message volume) < 10,  $\Delta$  point = 1 \* point

          When (message volume) > 10,  $\Delta$  point = 2 \* point

          Furthermore, points may be added or subtracted based on other standards, not just the number of messages made since  
10   entering a channel. For example, there is a method whereby points are added or subtracted according to how many of the last 100 messages in a channel were made by the user who said a URL. Points may also be added or subtracted according to the number of characters or bytes in a said  
15   message instead of the number of messages. In addition, there is a method whereby a comparison is made between the percentage of the number of messages by a user to the number of messages within a specific past time and a reciprocal of users in a channel. Alternatively, a comparison can be made  
20   based on certain percentage and the reciprocal of the number of users in a channel. The percentage is that of the number of messages by a user to the specific past number of messages. Points are added or subtracted according to that ratio.

Weighting URL characteristics based on parameter 2,  
time in a channel, is performed as follows. Points for each  
URL category are added or subtracted according to the time  
the user who said the URL stays in the channel. This is  
5 because a URL said by a user who spends a long time in a  
channel is considered to match the chat contents in the  
channel. Thus, the characteristics of that URL are  
reflected in the channel characteristics. In this embodiment  
addition and subtraction are performed as follows.

10 When (time spent in channel) < 10 minutes,  $\Delta$  point = 0  
(no change)

When (time spent in channel) < 30 minutes,  $\Delta$  point = 1  
\* point

When (time spent in channel) > 30 minutes,  $\Delta$  point = 2  
15 \* point

Weighting URL characteristics based on parameter 3,  
number of messages, is performed as follows. Points for  
each URL category are added or subtracted according to the  
number of times messages occur in a channel within a  
20 specific time after a URL is said. In this embodiment the  
specific time is 5 minutes, and addition and subtraction are  
performed as follows.

When (number of messages) < 3,  $\Delta$  point = 0 (no change)

When (number of messages) < 10,  $\Delta$  point = 1 \* point

When (number of messages) > 10,  $\Delta \text{ point} = 2 * \text{point}$

Furthermore, another standard can be used instead of the number of messages. For example, the standard can be the number of characters or bytes in a said message in a channel within a specific time after a URL is said.

Weighting URL characteristics based on parameter 4, channel operator attributes, is performed as follows. Points for each URL category are added or subtracted according to whether or not the user who said a URL is the channel operator. A channel operator is a user who has a set right to administer the channel in IRC. In this embodiment addition and subtraction are performed as follows.

If it's not the channel operator,  $\Delta \text{ point} = 0$  (no change)

If it's the channel operator,  $\Delta \text{ point} = 1 * \text{point}$

Furthermore, when necessary, decision part can perform URL characteristics weighting based on various other parameters in addition to the aforementioned parameters. For example, if the user who said a URL is expelled from a channel with a specific time after the message, points can be subtracted in that URL category.

## (2) User Terminal

A user terminal 1 is provided with an IRC client 11 and also a reporting part 12. The reporting part 12 stores channel characteristics reported from the IRC server 21.



The reporting part 12 also outputs channel characteristics, either automatically or in response to instructions from the user.

FIG. 5 shows an example of displaying channel characteristics according to the reporting part 12. The window in FIG. 5 is displayed by the IRC client 11, and has a current channel window 51, a message window 52, a channel monitor window 53, a user window 54, and a channel list window 55. The reporting part 12 displays the category with the most points and the number of points for each participating channel as the channel characteristics in the channel list window 55.

Furthermore, the current channel window 51 is the window that displays messages said in the current channel. The message window 52 is the window where an inputted message is to be said in the current channel. The channel monitor window 53 is the window that displays all of the messages said in sub channels. The user window 54 is the window for displaying the nicknames and so forth of users in the current channel. The channel list window 55 is the window for displaying a list of participating channels and specific information such as topics, etc.

Here, the current channel is the channel, among the channels in which the IRC client is participating, designated as the message target. Sub channel refers to a

channel other than the current channel among the channels in which the IRC client is participating.

FIG. 6 shows an example of an alternate display of channel characteristics according to the reporting part 12.

5 FIG. 6 is an example of displaying channel characteristics when the IRC client 11 is separately displaying a plurality of windows in accordance with user instructions. In the tool palette window (a) the user names each window (a) through (d).

10 Chat window (b) is a window that includes FIG. 5's current channel window 51, message window 52, and user window 54. Channel monitor window (c) and channel list window (d) are the same type of windows as channel monitor window 53 and channel list window 55 in FIG. 5 respectively.

15 Channel characteristics window (e) is displayed by double clicking any channel displayed in channel list window (d). The points in each category of the selected channel are displayed in this window.

[Processing Flow]

20 Next, the processing performed by the decision part 24 shall be explained in detail. FIG. 7 is a flow chart showing the flow of characteristic update processing performed by the decision part 24. The following processing starts when any IRC client says a message in any channel.



decision part 24 reads the time the URL sender spent in the channel from the user table, and determines the value of URL points to add or subtract according to time elapsed since entering the channel.

5       For example, suppose user "MUL" said "URL1". Also, suppose the URL table is in the state shown in FIG. 4, and user "MUL" is in the channel for 20 minutes. In this case, the points added to "computers" for "URL1" are  $1*5=5$ , and the points added to "economy" are  $1*2=2$ .

10       In step S7 the decision part 24 weights the URL characteristics based on channel operator attributes. That is, the decision part 24 adds or subtracts URL points based on whether or not the URL sender is the channel operator. Information as to whether the user is the channel operator  
15 or not can be obtained from the IRC server.

For example, suppose user "MUL" said "URL1". Also, suppose the URL table is in the state shown in FIG. 4. If user "MUL" is the channel operator, the points for "URL1" are increased:  $1*5=5$  for "computers," and  $1*2=2$  for  
20 "economy."

In step S8 the decision part 24 calculates the characteristics of the channel where the URL was said. Specifically, the decision part 24 first adds the increased or decreased values found in steps S5 through S7  
25 respectively to the points for the said URLs. The decision

part 24 finds the weighted points. Next, the decision part 24 totals the points for all URLs associated with the target channel in the URL table in each category. The decision part 24 then displays the results and the points for each category for the channel.

For example, suppose "URL1" was said in channel #CHOCOA, and the URL table is in the state shown in FIG. 4. URL1's points are weighted as in the example in the aforementioned steps S5 through S7. URL1 has 25 points for "computers" (5+10+5+5=25) and 10 points for "economy" (2+4+2+2=10). If the points for URL1 and URL2 are added in each category, channel #CHOCOA has 26 points for "computers," 15 points for "economy," and 1 point for "sports."

In addition, the decision part 24 reports the points calculated for the channel to the IRC server 21 as the channel characteristics. The IRC server 21 reports the updated channel characteristics to the IRC client 11. As a result, the channel characteristics are displayed as in FIG. 5 or FIG. 6.

In step S1, if the decision part 24 decides that a URL is not included in the message, the flow shifts to step S9. In step S9 the decision part 24 increments the sender's message volume.

In step S10 the decision part 24 refers to the URL table and decides whether or not the URL was said in the

previous five minutes before the message was said. This decision is conducted for the channel in which the message was said. Next, the decision part 24 increments the number of URL said in the last five minutes. For example, if the message time was 17:24:24 on October 26, 1999, "URL1" is found and its number of messages is incremented.

In step S11 the decision part 24 weighs the characteristics of the URL whose number was incremented based on the incremented number. For example, suppose the URL table is in the state shown in FIG. 4, and the number of "URL1" is increased. The number of "URL1" is 6. Thus, the points for "computers" increase by  $1 \times 5 = 5$  and the points for "economy" increase by  $1 \times 2 = 2$ . Subsequently, the flow returns to the aforementioned step S8, and the channel characteristics are calculated using newly weighted URL characteristics. The updated channel characteristics are reported from the decision part 24 to the IRC server 21 in the same manner as before, and output in the format shown in FIG. 5 or FIG. 6.

Through the FIG. 7 processing, channel characteristics are calculated based on URL and reported to the user. Moreover, the characteristics of a URL that is more similar to the chat contents are more strongly reflected in the channel characteristics. Channel characteristics found in this manner automatically reflect changing chat contents.

Thus, it becomes possible to display real time chat contents to the user.

#### Other Embodiments

5 (A) In the processing as illustrated in the aforementioned FIG. 7, the decision part 24 can also delete an entry for a URL when a specific valid time has elapsed since the URL was said. This is desired because rather old URLs are felt not to reflect previous chat contents. Time  
10 constraints can be set in advance at the system side or by the user.

(B) When channel characteristics created as described above are used, the decision part 24 can do other processing to encourage communication between users. FIG. 8 is a flow  
15 chart showing an example of processing that utilizes channel characteristics. The following processing begins when a message is said in any channel.

In step S81 the decision part 24 decides whether or not a message sender is included on the blacklist. Here the  
20 blacklist is a list created by the decision part 24; in it are written user identifiers who said URLs that are not suitable for the contents of the channel, for each channel. If the decision is "Yes", the flow shifts to step S82. If the decision is "No", the flow shifts to step S83, to be  
25 described later.

In step S82 the decision part 24 instructs the IRC server 21 to stop reporting the message to other users. The IRC server 21 follows the instruction and stops reporting the message.

5 In step S83 the decision part 24 decides whether or not a URL is included in the message. If it decides "Yes", the flow shifts to step S84. If it decides "No", the flow shifts to step S87, to be described later.

10 In step S84 the decision part 24 searches the category DB and reads the points in each category of the URL.

In step S85 the decision part 24 compares the URL characteristics and the channel characteristics. For example, the decision part 24 determines whether or not the URL category with the most points and the channel category  
15 with the most points are different. If the two do not match, the decision part 24 finds the point difference between the two in the channel category with the most points, for example.

In step S86 the decision part 24 decides whether or not  
20 the category with the most points matches the channel and URL, or decides whether or not the point difference found in the aforementioned step S85 is greater than a specific range. If it decides that the categories do not match or the specific range is exceeded, the flow shifts to step S88, to  
25 be described later. This is when the amount of divergence



between channel characteristics and URL characteristics is large. If it decides that the categories match or are within the specific range, the flow shifts to step S87. This is when it decides that the channel characteristics and  
5 URL characteristics do not diverge too much.

In step S87 the decision part 24 reports the decision results to the IRC server 21. In accordance with the decision results, the IRC server 21 reports the URL to other IRC clients in the channel.

10 In step S88 the decision part 24 adds users who said URLs not suitable for the channel characteristics to the blacklist.

In step S89 the decision part 24 instructs the IRC server 21 to expel the user who said the unsuitable URL from  
15 the channel. In accordance with the instructions, the IRC server 21 expels the aforementioned user from the channel. Then processing ends.

In other words, the processing shown in FIG. 8 is processing that expels a user from a channel if the user  
20 says a URL that has characteristics that are greatly different from the channel characteristics. The processing subsequently controls channel participation and messages based on channel attributes so that that user's messages are not reported in the channel. Conversely, when a URL  
25 conforms to the channel characteristics, that URL is

reported to other users. Therefore URL that are not suitable to the chat contents in a channel and inappropriate messages are prevented in advance by the present invention in real time, and thereby, encourage smoother communication.

5 Also, the processing may be altered according to the amount of divergence between channel characteristics and URL characteristics found in step S86. For example, if the difference between URL points in the channel category with the most points is greater than a specific range, the URL sender is expelled from the channel. If the point difference is within the specific range, a message that includes the URL is simply not reported to other users.

10 (C) The following sort of method can be considered as a method of supporting communication between users using channel characteristics.

15 When a user's characteristics are prepared in advance, it is possible to restrict user participation in a channel based on the user characteristics and the channel characteristics. User characteristics are created by correlatively storing the categories of a URL said by a user and a user identifier, for example. If a user for whom the difference between channel characteristics and user characteristics exceeds a specific range attempts to enter a channel, the entry request can be denied. Conversely, a user whose user characteristics are similar to the channel

20

25

characteristics is welcomed to the channel, and chatting can flourish.

(D) The aforementioned embodiments were explained for cases in which the communication support system of the present invention was applied to IRC. However, the present invention can be applied to other chat systems in the same way.

(E) Included in the present invention, the recording medium on which the program is recorded executes the inventive processing described herein. Examples of recording media include computer-readable floppy disks, hard disks, semiconductor memories, CD-ROM, DVD, magneto-optical disks (MO), etc.

(F) Also included in the present invention is a transmission medium that transmits the program that executes the inventive processing described herein. Examples of transmission media include communication media in computer network systems for transmitting and supplying program information as a transmission wave. Computer networks include LAN, the Internet, wireless communication networks, etc. Communication media include optical fiber, wireless circuits, etc.

Utilizing the present invention in a chat system in which a plurality of users participates makes it possible to report the gradually changing chat contents in a virtual

space to users in accordance with the changes. The characteristics of a virtual space are calculated based on the chat contents themselves, so even if the chat contents change, characteristics reflecting the real time chat contents can be reported to users.

While these embodiments have been chosen to illustrate the present invention, it will be apparent to those skilled in the art from this disclosure that various changes and modifications can be made herein without departing from the scope of the invention as defined in the appended claims. Furthermore, the foregoing description of the embodiments according to the present invention are provided for illustration only, and not for the purpose of limiting the invention as defined by the appended claims and their equivalents.

What is claimed is:

Claim 1

A communication support method used in a chat system structured to include chat devices connected to a network and which share virtual chat spaces configured on said network and which can send and receive messages among themselves, comprising:

associating and preparing specific keywords with specific categories;

specifying said keyword categories wherein at lease one of said keywords are included in messages sent or received in a virtual space;

associating and storing said keywords and said keyword categories with virtual space identifiers of said virtual spaces in which messages are sent or received;

calculating characteristics of said virtual spaces based on said keyword categories associated with the virtual spaces; and

reporting said virtual space characteristics to users.

20

Claim 2

A communication support system used in a chat system structured to include chat devices connected to a network and which share virtual chat spaces configured on said

network and which can send and receive messages among themselves, comprising:

a category table for associating and storing specific keywords with specific categories;

5 a virtual space table for associating and storing virtual space identifiers, said keywords sent into said virtual spaces, and said keyword categories;

a control means for reading said keyword categories from said category table and for writing said virtual space  
10 identifiers of said virtual spaces into which at least one of said keywords were sent, said keywords, and said keyword categories in said virtual space table wherein a message sent into virtual space is acquired from said chat system and said message includes at least one of said keywords;

15 a decision means for calculating characteristics of said virtual space based on said keyword categories associated with the virtual spaces; and

an output means for outputting said characteristics of said virtual spaces.

20

### Claim 3

The communication support system of claim 2, wherein said virtual space table associates and stores said virtual space identifiers, keywords, keyword categories and message

times at which said keywords were sent into said virtual spaces;

said control means additionally acquires said message times of said messages including keywords from said chat system and writes said keyword message times to said virtual space table; and

said decision means calculates said virtual space characteristics based on said keyword categories in accordance with chat volume in said virtual space from a message time until a specified time has elapsed.

#### Claim 4

The communication support system of claim 2, wherein said communication support system is additionally provided with a message volume storage means for storing message volume determined from a volume of messages sent from chat devices for each virtual space; and

said decision means calculates said virtual space characteristics based on said keyword categories sent by chat devices in accordance with said message volume of chat devices in said virtual spaces.

#### Claim 5

The communication support system of claim 2, wherein said communication support system is additionally provided





said chat system sends the message in accordance with said decision.

Claim 8

5       The communication support system of claim 7, wherein decision means instructs the chat system to expel a chat device that sent an unsuitable message from a virtual space upon deciding that said message will not be reported to other chat devices; and

10       said chat system expels said chat device that sent said message from said virtual space in accordance with said instruction.

Claim 9

15       The communication support system of claim 7, wherein said decision means additionally has a blacklist that records chat devices that sent unsuitable messages wherein said decision means decided that said messages would not be reported to other chat devices,

20       said decision means decides that said messages will not be reported to other chat devices wherein the sending sources of said messages acquired from the chat system are included on said blacklist.

25       Claim 10



preparing a virtual space table for associating and storing virtual space identifiers of said virtual spaces, said keywords sent into said virtual spaces, and said keyword categories;

5 reading said keyword categories from said category tables and writing said virtual space identifiers of said virtual spaces into which said keywords were sent, said keywords, and said keyword categories to said virtual space table wherein a message sent in virtual space is acquired  
10 from said chat system and the message includes at least one of said keywords;

calculating characteristics of said virtual spaces based on said keyword categories associated with said virtual spaces; and

15 outputting said characteristics of said virtual spaces.

#### Claim 13

A transmission medium transmitting a communication support program that reports virtual space characteristics  
20 to chat devices which share virtual spaces configured on a network and which can send and receive messages among themselves; the control program executing the stages comprising:

preparing a category table for associating and storing  
25 specific keywords with specific categories;

preparing a virtual space table for associating and storing virtual space identifiers of said virtual spaces, keywords sent into in said virtual spaces, and keyword categories;

- 5 reading said keyword categories from said category table and writing said virtual space identifiers of said virtual spaces into which said keywords were sent, said keywords, and the keyword categories to said virtual space table wherein a message sent into a virtual space is
- 10 acquired from said chat system and the message includes at least one of said keywords;
- calculating the characteristics of said virtual spaces based on said keyword categories associated with said virtual spaces; and
- 15 outputting said characteristics of said virtual spaces.

Document Name: Abstract

## Abstract

A communication support method system to ease make  
5 selection of a virtual space in a chat system. Category DB  
22, which accumulates URLs and URL categories, is prepared.  
A URL said in a channel, its category, and the channel name  
are written to a URL table. The total sum of categories of  
URLs said in a channel becomes the channel characteristics.  
10 Channel characteristics are displayed in a window, etc. at  
an IRC client. After finding the total sum of URL  
categories, the weighting of URLs that conform to the chat  
contents should be immediately increased so that the channel  
characteristics better reflect the chat contents. For  
15 example, this includes increasing the weighting of URLs said  
by users who spend a long time in the channel or users who  
are active in sending messages. This also includes  
increasing the weighting of URLs which result in active  
chatting after the URL is said.

20 Selected Drawing: FIG. 1



URL	Computers	Education	Economy	Politics	Sports
URL1	5	0	2	0	0
URL2	1	0	5	0	0
URL3	0	5	1	1	1
⋮	⋮	⋮	⋮	⋮	⋮

Fig.2

Channel Name	User Name	Entry/Exit Time	Message Volume
#CHOCOA	MUL	1999/10/26 10:54:50	14
	Pine	1999/10/26 12:01:52	5
	⋮	⋮	⋮

Fig.3

Channel Name	URL	Message Sender	Time Message Sent	No. of Message	URL Characteristics			
					Computers	Education	Economy	Politics Sports
#CHOCOA	URL1	MUL	1999/10/26 17:21:24	6	5	0	2	0
	URL2	Pine	1999/10/26 17:18:36	1	1	0	5	0
								1

Fig.4



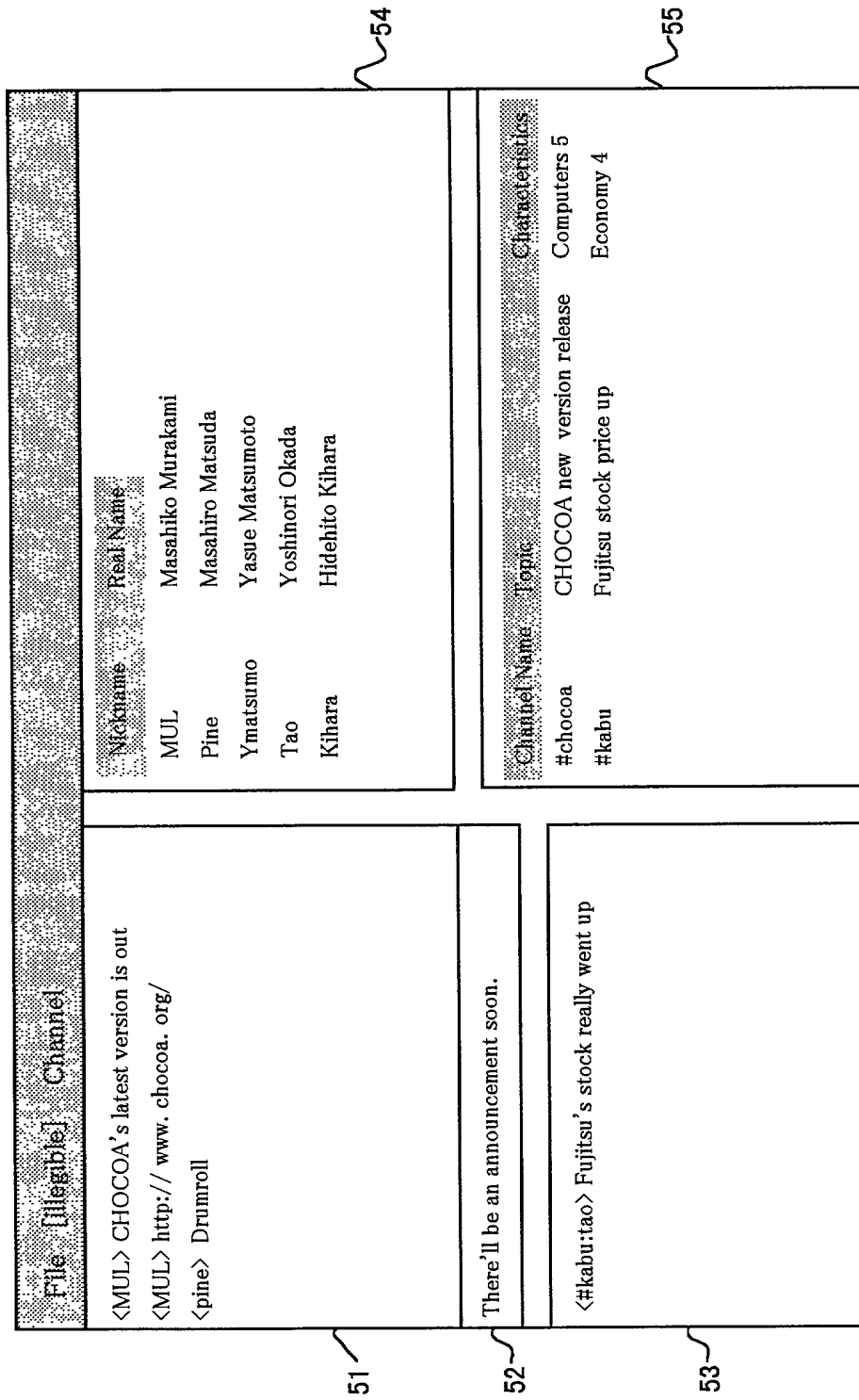
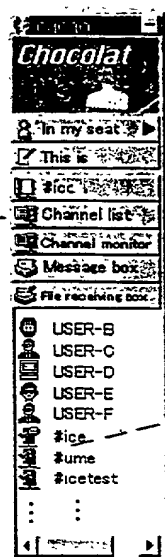
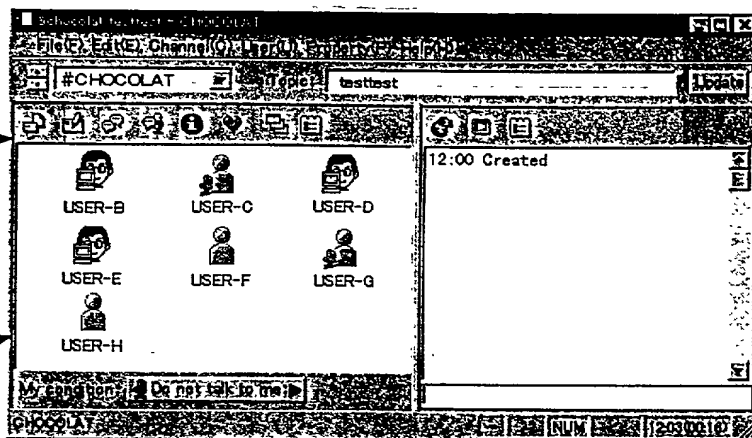


Fig. 5

(a) Tool palette window



(b) Chat window



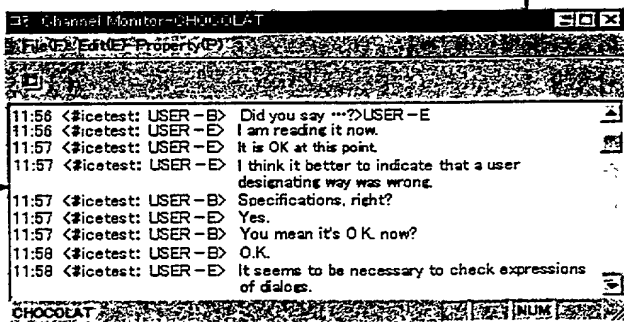
(c) Channel characteristics window

Channel characteristics of #chocoa	
Feature	Label
Calculator	5
Literature	0
Economy	3
Politics	0
Sports	0

(d) Channel list window

Channel Name	User No	Topic	Channel
#ume 3	10		
&#icetest	11	test channel for \$\$ and---	
#ielab	92	test 2	
#icetest	9	test<OHEMF=RESVb	
#ice	52		
&#chocolat	10	5th Anniversary Exhibition of Akashi Lab	

(e) Channel monitor window



← : Single click

← : Double click

Fig.6



**Fig.7**

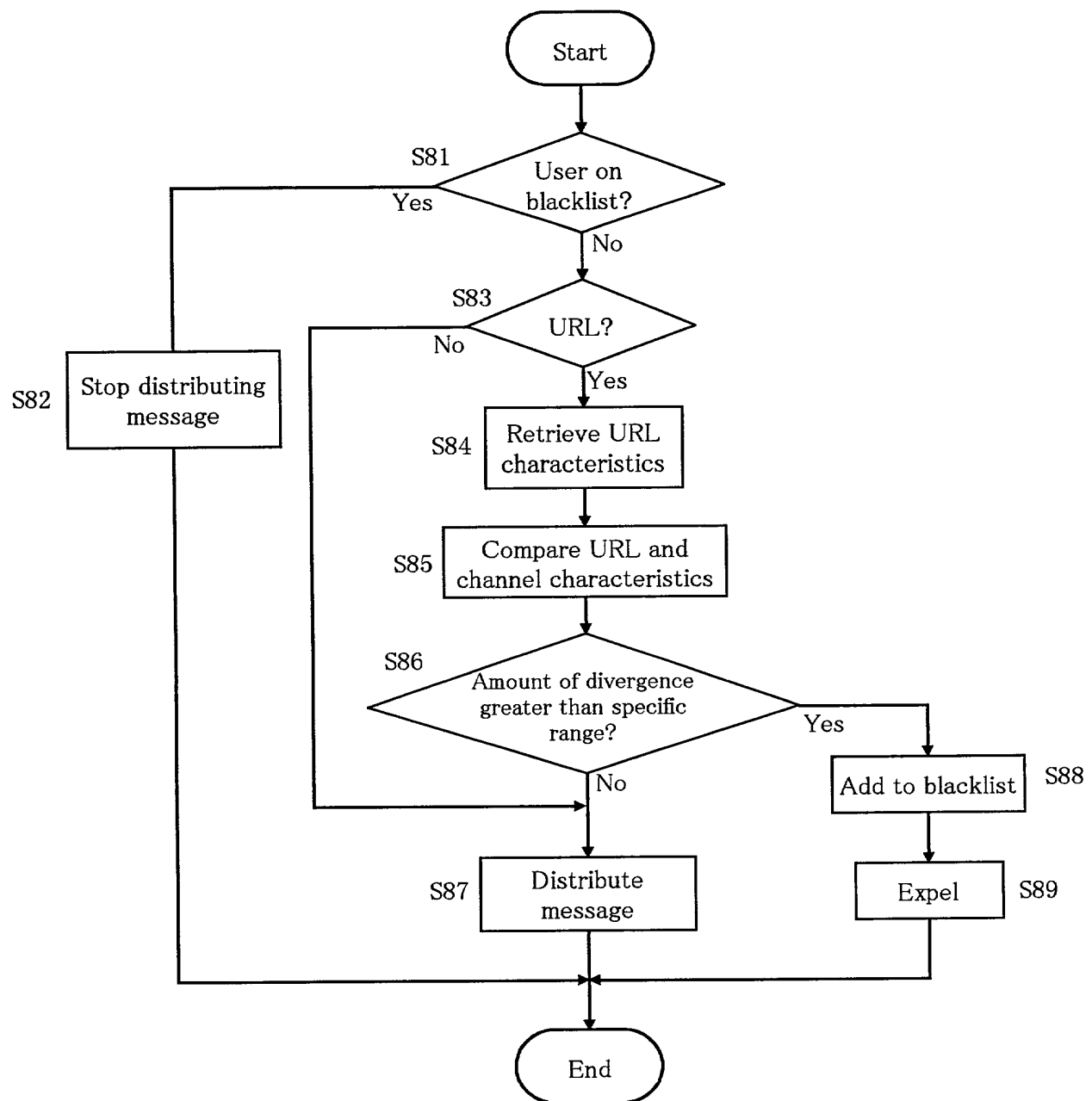


Fig.8

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Declaration and Power of Attorney For Patent Application

### 特許出願宣言書及び委任状

### Japanese Language Declaration

### 日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名称が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

COMMUNICATION SUPPORT METHOD AND

SYSTEM

上記発明の明細書（下記の欄でx印がついていない場合は、本書に添付）は、

the specification of which is attached hereto unless the following box is checked:

☐ 月 日 に提出され、米国出願番号または特許協定条約  
国際出願番号を \_\_\_\_\_ とし、  
(該当する場合) \_\_\_\_\_ に訂正されました。

☐ was filed on \_\_\_\_\_  
as United States Application Number or  
PCT International Application Number  
\_\_\_\_\_ and was amended on  
\_\_\_\_\_ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

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私は、米国法典第35編119条(a)-(d)項又は365条(b)項に基づき下記の、米国以外の国の少なくとも一カ国を指定している特許協力条約365(a)項に基づく国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

### Prior Foreign Application(s)

外国での先行出願  
11-331576

Japan

(Number)  
(番号)

(Country)  
(国名)

(Number)  
(番号)

(Country)  
(国名)

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(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

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(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

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(Filing Date)  
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I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Not Claimed  
優先権主張なし

22/11/99

(Day/Month/Year Filed)  
(出願年月日)

(Day/Month/Year Filed)  
(出願年月日)

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

(Status: Patented, Pending, Abandoned)  
(現況: 特許許可済、係属中、放棄済)

(Status: Patented, Pending, Abandoned)  
(現況: 特許許可済、係属中、放棄済)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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# Japanese Language Declaration

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